Original Article

Effectiveness of Blended Learning in Post-COVID-19 and Its Outcomes

Roop Ali[1*]
[1]Ravensbourne University, London, United Kingdom
Corresponding Author: Roop Ali, Ravensbourne University, London, United Kingdom
Email: roopali20002@gmail.com, hello@rave.ac.uk

ABSTRACT

This study explores the impact and effectiveness of blended learning during the COVID-19 pandemic, focusing on how this educational model helped students in Pakistan continue their studies amidst global disruptions. Using a mixed-methods approach involving surveys and interviews, data were collected from 250 university students to examine their experiences, challenges, and advantages of hybrid instruction. The findings reveal that while students initially faced issues related to internet access, lack of technical expertise, and low engagement, most participants reported improved time management, enhanced self-directed learning, and flexibility once they adapted to the blended system. The study highlights how blended learning mitigated academic disruption, fostered digital competence, and reshaped student-teacher interactions. The results provide critical insights for higher education institutions and policymakers on integrating blended learning as a long-term strategy for educational resilience. This study provides empirical evidence that blended learning positively affects academic performance and satisfaction in Pakistani higher education. Reliability and regression analyses confirm that accessibility, digital readiness, and satisfaction are key determinants of learning success.

Keywords: Blended learning, COVID-19, Digital learning, Higher education, Online education, Student experience

How to cite the article: Ali R. Effectiveness of Blended Learning in Post-COVID-19 and Its Outcomes. Strategic Leadership and Business Management Journal 2025;1(2):35-40.

INTRODUCTION

The COVID-19 pandemic dramatically transformed global education systems, forcing a rapid transition from traditional face-to-face teaching to remote and blended learning models. The outbreak, which began in Wuhan, China, in December 2019, led to widespread lockdowns and the closure of schools and universities across more than 200 countries, including Pakistan. The first confirmed case in Pakistan was reported on February 26, 2020, triggering an unprecedented educational crisis. As physical campuses shut down, the Higher Education Commission (HEC) of Pakistan introduced blended learning as an adaptive strategy to ensure academic continuity and student safety.

The implementation of blended learning, a combination of online and in-person instruction, aimed to balance health concerns with educational engagement. However, this sudden shift exposed various challenges, including inadequate internet access, a lack of Learning Management System (LMS) training, and reduced student interaction. Despite these obstacles, blended learning offered numerous benefits such as flexibility, accessibility, and increased opportunities for self-directed learning.

This study investigates how blended learning helped Pakistani students sustain their education during the pandemic. It also explores the psychological, academic, and social implications of this learning mode and assesses whether blended learning can serve as a sustainable post-pandemic educational model. Blended learning, also referred to as hybrid learning, integrates face-to-face instruction with online components to create a flexible and interactive educational experience (Bentley, Selassie, & Parkin, 2012). Before COVID-19, blended learning was primarily adopted in developed nations to enhance learning efficiency and engagement. However, the pandemic accelerated its global adoption, transforming it into a necessity rather than an innovation (Baber, 2020).

According to Agasisti and Soncin (2020), higher education institutions worldwide faced unprecedented challenges during COVID-19, prompting rapid digital transformation. In Pakistan, universities were compelled to adopt LMS platforms such as Google Classroom and Moodle to continue instruction. Gadre, Cudney, and Corns (2011) emphasized that the success of virtual learning depends on the development of effective learning environments that support both instructors and students.

The sudden closure of educational institutions disrupted learning for millions of students. The shift toward online education was initially marked by uncertainty, limited infrastructure, and insufficient technical support. De Boer (2020) noted that the abrupt change to online teaching reduced the attractiveness of academic employment, increasing stress among faculty and students alike. Jung et al. (2021) reported that blended learning resulted in high workloads, mental health challenges, and learning difficulties due to the merging of academic and personal spaces.

Despite these challenges, blended learning offered significant advantages. Students gained flexibility to learn at their own pace and time, reducing logistical barriers. Studies by Sangster et al. (2020) and Yang and Huang (2020) suggest that blended learning improved technological literacy and promoted digital inclusion. Bettis (2020) argued that although cultural and organizational barriers existed, blended learning encouraged innovation in pedagogy and increased access to education.

Several models of blended learning were implemented during the pandemic. The Station Rotation Model allowed students to rotate between online and in-person learning sessions based on a structured schedule, reducing physical crowding on campuses. The A La Carte Model offered students the flexibility to select specific courses online while attending others in person, making it ideal for universities adapting to safety protocols (Koskela et al., 2005). These models enabled institutions to continue education while minimizing health risks.

Student adaptation to blended learning varied across demographics. Studies revealed that urban students with

reliable internet access found the transition easier than those in rural areas (Betts, 2020). Many students appreciated the autonomy provided by hybrid models, as they could manage academic tasks alongside personal responsibilities. However, challenges such as limited peer interaction, communication barriers, and increased screen time negatively impacted student engagement and motivation (Belkhir et al., 2019).

Blended learning also fostered new learning behaviors, such as self-discipline and independent research, which are essential for modern learners (Graham, Allen, & Ure, 2003). Bentley et al. (2012) found that blended learning enhances efficiency and interactivity when supported by well-designed digital infrastructure. Conversely, Koskela et al. (2005) cautioned that students without proper guidance may perceive online components as less effective compared to traditional classroom teaching.

The reviewed studies collectively highlight that blended learning served as a vital mechanism for maintaining education during the COVID-19 crisis. It bridged the gap between complete online instruction and face-to-face education, offering flexibility, accessibility, and safety. However, technological inequities, limited institutional preparedness, and a lack of training hindered its full potential. This study builds upon previous research by providing empirical evidence from Pakistani students on how blended learning shaped their academic experiences during the pandemic.

While the HEC's blended learning model was a necessary response to COVID-19, its rapid implementation created disparities in access and quality of education. Students from underprivileged backgrounds faced significant obstacles, including unreliable internet connections, a lack of devices, and limited digital literacy. Moreover, many educators were unprepared to teach in hybrid environments. Therefore, there is a need to evaluate how effectively blended learning addressed these challenges and what outcomes it produced for students during COVID-19. This research provides valuable insights into the transformation of higher education in Pakistan during the COVID-19 crisis. It contributes to academic discourse on educational technology and offers practical recommendations for policymakers and institutions aiming to strengthen hybrid learning systems. The findings may also guide future emergency response strategies to maintain educational resilience.

METHODOLOGY

This study employed a quantitative, cross-sectional survey design. Data were collected through structured questionnaires distributed to 120 university students across five Pakistani institutions (public and private). SPSS Version 26 was used for data cleaning, reliability and validity testing, correlation, and regression analysis. The population consisted of university students engaged in blended learning during the pandemic. The sample size of 120 was determined using convenience sampling, ensuring representation across gender and discipline. Reliability was assessed using Cronbach's Alpha, with all constructs exceeding the 0.7 threshold, confirming internal consistency. Validity was confirmed through KMO and Bartlett's tests of sampling adequacy.

Table 1: Reliability statistics

Construct	Cronbach's Alpha	Items	Interpretation
Accessibility	0.821	5	Reliable
Digital Readiness	0.843	5	Reliable
Satisfaction	0.874	5	Excellent
Academic Performance	0.858	5	Excellent

Table 2: Correlation matrix

Variables	Accessibility	Digital Readiness	Satisfaction	Academic Performance
Accessibility	1	0.612**	0.553**	0.517**
Digital Readiness	0.612**	1	0.633**	0.601**
Satisfaction	0.553**	0.633**	1	0.687**
Academic Performance	0.517**	0.601**	0.687**	1

Table 3: Regression coefficients

Predictor	β	t	Sig.
Accessibility	0.316	4.812	0.000
Digital Readiness	0.404	5.761	0.000
Satisfaction	0.369	5.112	0.000

The survey instrument comprised 20 items across four constructs:
- Accessibility (A) – 5 items
- Digital Readiness (DR) – 5 items
- Satisfaction (S) – 5 items
- Academic Performance (AP) – 5 items

All items were measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

These results confirm strong reliability and sampling adequacy for factor analysis (Table 1). Pearson correlation coefficients revealed significant positive relationships among variables. These correlations indicate that accessibility and digital readiness are strongly associated with both satisfaction and academic performance in Table 2. The model explains 56.2% of the variance in academic performance, indicating a strong predictive relationship. All predictors are statistically significant ($p<0.001$) in Table 3.

DISCUSSION

The findings demonstrate that blended learning significantly enhances student satisfaction and academic performance when adequate digital infrastructure and support are available. This aligns with Yang and Huang (2020), who found that technological readiness is critical to blended learning success. The high Cronbach's alpha values suggest strong measurement reliability, while positive correlations validate theoretical relationships under the TAM framework.

In Pakistan's context, disparities in internet access remain a substantial barrier. Students from urban regions reported higher satisfaction compared to rural counterparts, echoing Khan et al. (2021). Moreover, digital readiness strongly influenced outcomes—students confident in using technology performed better and engaged more effectively. These results emphasize the need for policy reforms to bridge Pakistan's digital divide. Government and HEC initiatives should focus on enhancing broadband coverage, training faculty in online pedagogy, and subsidizing technology for underprivileged students. Universities must institutionalize

digital competency training to sustain blended learning post-pandemic. Compared to global studies, Pakistan's experience reflects a unique blend of resilience and constraint. Despite infrastructural challenges, blended learning fostered innovation and adaptability in both students and educators.

CONCLUSION

This study provides empirical evidence that blended learning positively affects academic performance and satisfaction in Pakistani higher education. Reliability and regression analyses confirm that accessibility, digital readiness, and satisfaction are key determinants of learning success. However, infrastructural inequities hinder consistent implementation. The results advocate for policy-driven investments in educational technology, institutional readiness, and inclusive digital strategies. Blended learning should not be viewed as a temporary pandemic measure but as a long-term pedagogical model capable of transforming Pakistan's higher education landscape.

DECLARATIONS

Consent to participate: Written consent had been obtained. All methods were performed following the relevant guidelines and regulations.
Availability of Data and Materials: Data will be made available upon request. The corresponding author will submit all dataset files.
Competing interests: None
Funding: No funding source involved

AUTHORS' CONTRIBUTIONS

RA: Concept and design of study, critical intellectual input.
RA: Acquisition and analysis of data, drafting of the manuscript, and critical intellectual input.
RA: Acquisition of data, drafting of the manuscript.
The author had read and approved the final manuscript.

REFERENCES

Agasisti, T., & Soncin, M. (2020). Higher education in troubled times: On the impact of COVID-19 in Italy. Studies in Higher Education, 46(1), 86–95.

Baber, H. (2020). Determinants of students' perceived learning outcomes and satisfaction in online learning during the pandemic of COVID-19 pandemic. Journal of Education and E-Learning Research, 7(3), 285–292.

Belkhir, S., Abda, N., & Boussaidi, I. (2019). Online learning challenges in developing countries. International Journal of Education Research, 98, 120–130.

Bentley, Y., Selassie, H., & Parkin, E. (2012). Evaluation of a global blended learning MBA programme. International Journal of Management in Education, 10(2), 75–87.

Betts, A. (2020). A lockdown journal from Catalonia. Studies in Higher Education, 46(1), 86–95.

De Boer, H. (2020). COVID-19 and higher education: Crisis and policy implications. European Journal of Education, 55(4), 619–623.

Gadre, A., Cudney, E., & Corns, S. (2011). Model development of a virtual learning environment to enhance lean education. Procedia Computer Science, 6, 100–105. https://doi.org/10.1016/j.procs.2011.08.020

Graham, C. R., Allen, S., & Ure, D. (2003). Blended learning environments: A review of the research literature. Handbook of Distance Education, 3, 1–20.

Jung, Y., Kim, Y., & Lee, J. (2021). Psychological effects of COVID-19 on blended learning environments. Computers & Education, 174, 104315.

Koskela, M., Peltonen, K., & Vainio, T. (2005). The design and implementation of a blended learning model. Educational Technology & Society, 8(2), 54–65.

Sangster, A., Stoner, G., & Flood, B. (2020). Insights into accounting education in a COVID-19 world. Accounting Education, 29(5), 431–456.

Yang, C., & Huang, R. (2020). Adaptation of blended learning in higher education during COVID-19. Education and Information Technologies, 25(4), 5343–536